Giving Research Talks

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Outline

- Rules on preparation
- Rules on delivery

✓ Examples to make it concrete

1. Preparation

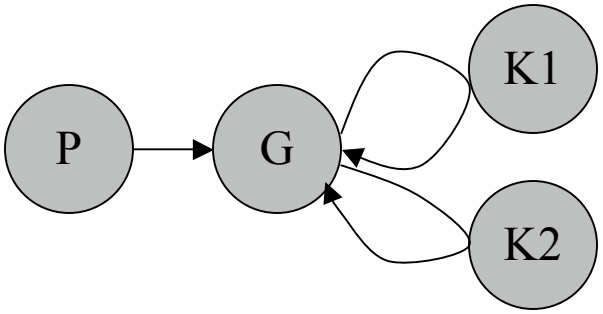
Rule 1: Tell a story

- Context
  - “Once upon a time, …”
- Problem
  - “The ogre ate all the apples, so the children went without…”
- Solution
  - “The anti-ogre fence…”
- Evaluation
  - “Ogre infestations declined 58% over 5 years…”
- Conclusions
  - “We recommend anti-ogre fences”

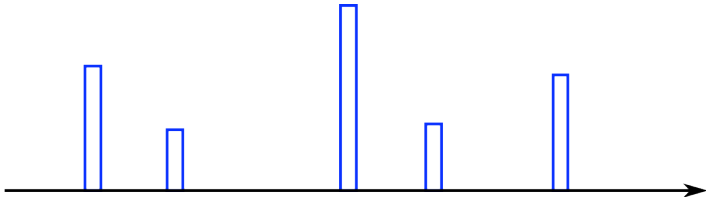
Rule 2: 1-2-3 rule

- **One** idea per slide

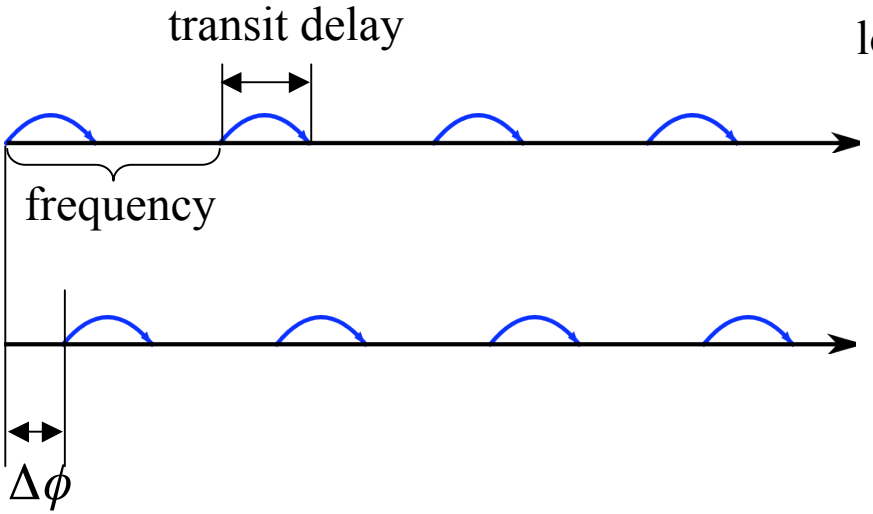
Microbenchmarks



Traffic Model: Batched Poisson



load = mean batch size / mean batch interval



Load	0.45
Allowed Rate	0.5
Frequency	12 / day
Transit Delay	60 min
$\Delta\phi$	180°

Rule 2: 1-2-3 rule

- **Two** minutes per slide
- 30 minute talk: no more than 15 body slides
  - unless very sparse
  - like this talk!

Rule 2: 1-2-3 rule

- At most **three** topics
  - figure them out beforehand
  - depends on the nature of the audience
  - work backwards from them
- What are the topics for this talk?

Rule 3: Use outlines

- Outlines show *connections*
  - as important as the details
- Start with an outline
- Repeat the outline or section title for each section
  - ‘roadmap’

Rule 4: Impact is inversely proportional to word count

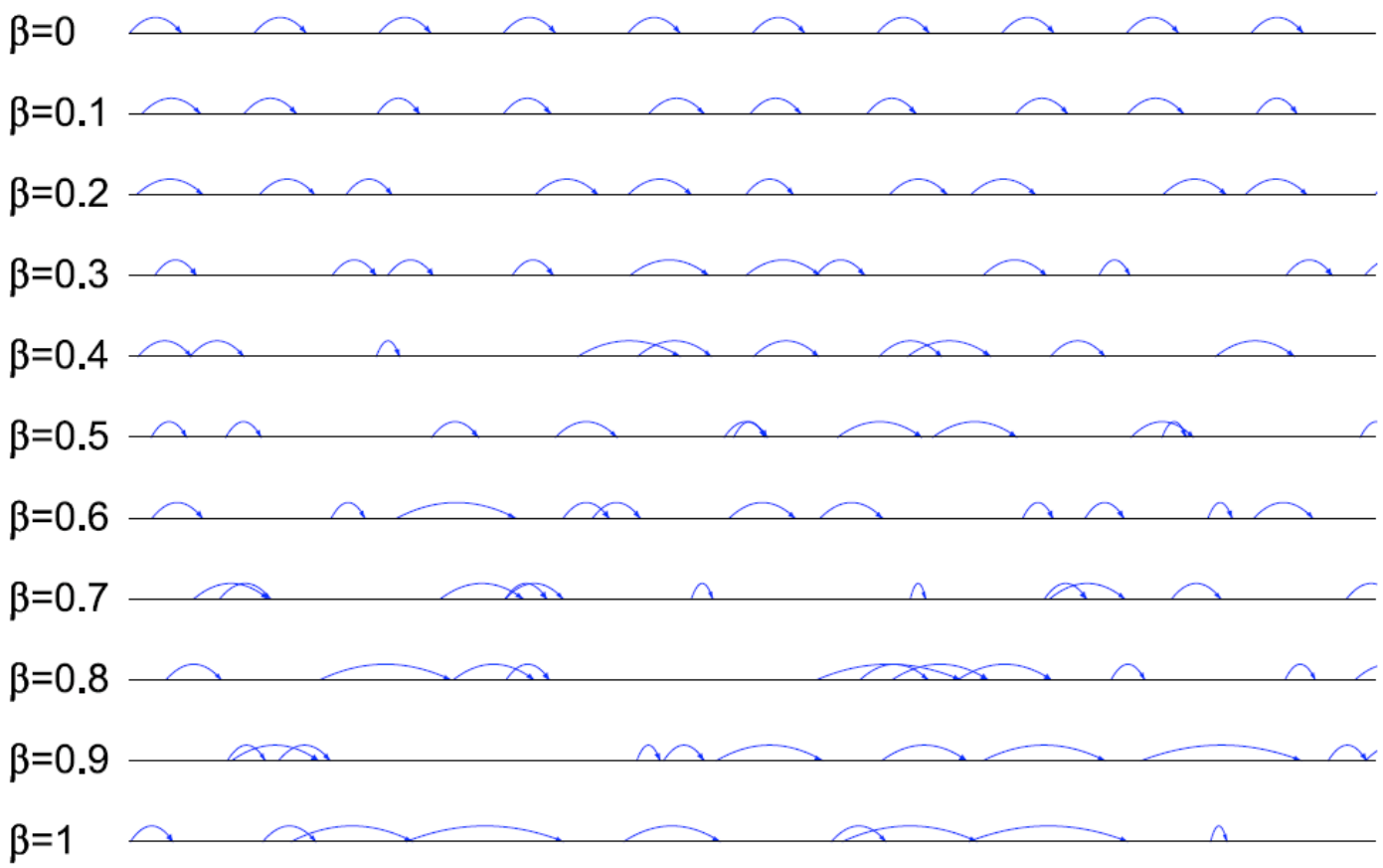
- "Words on presentation slides are a very good idea, but only when the audience is deaf."

  - Prof. W. Cowan, University of Waterloo

Imprecise schedules

- Consider a precise schedule
  - time series of arrival times
- To create imprecise schedules, we jitter each arrival time by a Gaussian random variable
- ‘Beta’ parameter is the ratio of the standard deviation of the r.v. to its mean
  - Increasing beta increases imprecision

Imprecise schedules



Rule 5: Use friendly fonts and colours

- KioskNet Architecture
- *Downlink Scheduling*
  - *Problem Definition*
  - *Existing Approaches*
  - *Our Solution*
  - *Simulation*
- Implementing the KioskNet System
- Conclusions and future work

Rule 6: Never show tables when you can show graphs

Table 4. Cases of meningococcal disease in Dublin 1998 by area of residence

Area	Cases	
	n	%
1	2	5
2	1	3
3	2	5
4	2	5
5	8	22
6	7	19
7	10	27
8	2	5
9	2	5
10	1	3
Total	37	100

The area map

From epinorth.org

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Rule 8: Use compelling examples

- Use running examples if possible

Rule 9: Avoid colloquialisms

- It’s like, duh

Rule 10: Describe related and past work

"If I have seen further it is only by standing on the shoulders of Giants."

Isaac Newton

Rule 11: Showcase your contributions

- Tell the audience exactly what your contribution is
  - don’t make them guess
- My contributions
  - succinct summary of rules for giving talks
  - illustrated with examples
  - based on my experience and that of others

Rule 12: Highlight insights

- The story behind the work is what audiences come to talks for
  - that's what is missing in a paper!

2. Delivery

Rule 1: Talk to the audience, not the screen

- Scan the audience, gauge understanding

Rule 2: Never read from notes

- Its depressing

Rule 3: Walk audiences through formulae

$$\log N^*(t) = \log\left(\prod_{i=1}^{n} N^i\left(\frac{t}{\sigma}\right)\right) = \sum_{i=1}^{n} \log\left(N^i\left(\frac{t}{\sigma}\right)\right) \approx \sum_{i=1}^{n} \log\left(1 + \frac{(\sigma^i)^2}{2}\left(\frac{t}{\sigma}\right)^2\right) \quad \textbf{(EQ 14)}$$

It is easily shown by the Taylor series expansion that when h is small (so that h^2 and higher powers of h can be ignored) $\log(1+h)$ can be approximated by h. So, when n is large, and σ is large, we can further approximate

$$\sum_{i=1}^{n} \log\left(1 + \frac{(\sigma^i)^2}{2}\left(\frac{t}{\sigma}\right)^2\right) \approx \sum_{i=1}^{n} \frac{(\sigma^i)^2}{2}\left(\frac{t}{\sigma}\right)^2 = \frac{1}{2}\left(\frac{t}{\sigma}\right)^2 \sum_{i=1}^{n} (\sigma^i)^2 = \frac{1}{2}t^2 \quad \textbf{(EQ 15)}$$

where, for the last simplification, we used Equation 10. Thus, $\log N^*(t)$ is approximately $1/2\ t^2$, which means that

$$N^*(t) \approx e^{\frac{t^2}{2}} \quad \textbf{(EQ 16)}$$

Rule 4: Speak slowly and clearly

Rule 5: Respect questioners

- Hear questions fully
- Defer them if needed

Rule 6: Practice your talk

- Practice
- Practice
- Practice
- Practice
- Practice
- Practice
- Practice
- Practice
- …

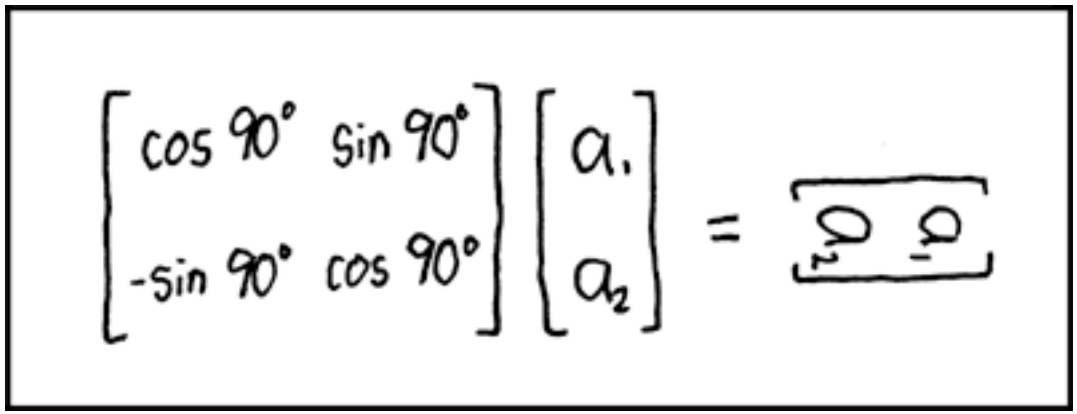
Rule 7: Arrive early

- Test your laptop
- Bring a memory stick
- Do the talk on a white/black board if necessary

Rule 8: Bring a pointer

- Laser, stick, or pen

Rule 9: A little humour goes a long way



From XKCD

Rule 10: End on time

- Keep track of the time